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CENTRAL INTELLIGENCE AGENCY

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COUNTRY East Germany/Soviet Bloc

REPORT

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SUBJECT 1. Coordination between East Germany and Soviet Bloc Countries in the Field of Electronics.
2. Transistor and Tube Development in East Germany

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1. From 22-26 May 1956, a conference, attended by East German delegates, on the tropicalization of electric instruments and components was held in Prague.

2. On 28 May 1956, VEB Werk fuer Fernmeldewesen WF (telecommunications equipment factory), Berlin-Oberschoeneweide, was visited by two Soviet and two Czech technicians. It was understood that this visit was part of the program for coordinating the electronics industries of the entire Soviet bloc. One of the Czechs was the plant engineer of the Prague firm Tesla, who said that the EC-560 triode was manufactured by his plant, but that the rejection rate was 90%.

3. An economic conference held in Werk WF on 24 May 1956, was presided over by Hermann Axen (Second Secretary of the Buero der BL Gross Berlin) who attempted to convince the WF delegates that the tasks set forth in the second Five-Year Plan could and should be satisfactorily completed. He stressed the importance of electronic development in East Germany for defense purposes, and added that economic coordination of the Soviet bloc would shortly bear fruit in the electronics industry. He mentioned the Czech visit (para 2 above) as an example of this.

4. It was also pointed out that the personnel situation in Werk WF and other electronic plants was very critical. There was a severe shortage of trained men at every level, and the best graduates of East German schools and universities defected to the Federal Republic as soon as they had finished their studies.

5. In the course of this conference it was stated that Werk WF was now producing 3,000,000 tubes per month.

6. On 23-24 May 1956, a conference took place in Leipzig on amplifier components (Verstaerkerelemente). Representatives were present from VEB Werk fuer Bauelemente der Nachrichtentechnik Teltow (at whose initiative the meeting had been called), VEB Funkwerk (radio equip-

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ment factory) Erfurt, VEB Werk fuer Fernmeldewesen WF, VEB Sachsenwerk Radeberg, VEB Funkwerk Dresden, VEB Fernmeldewerk (telecommunications equipment factory) Leipzig, and VEB Funkwerk Leipzig-Plagwitz.

7. The emphasis of the meeting was placed on transistor technique, and Dr. Matthias Falter of Teltow was particularly anxious to learn how the transistors produced at Teltow were judged by their users. The criticism was made that the technical data of the transistors developed and produced at Teltow was insufficiently accurate, and Falter admitted that he was not yet in a position to specify the tolerances of the surface barrier transistors (Flaechentransistoren).[2]

8. In the discussions it was clear that, in this field, East German industry is much hindered by lack of materials. The development of magnetic amplifiers, for instance, is hindered by the inferior quality of the grades of iron; material for dielectric amplifiers is entirely lacking; in the field of tube production insufficient or inferior materials cause great disparities of operational efficiency.

9. Dr. Falter announced that the Teltow factory had produced a total of 500 transistors by the end of May 1956. These were pnp (positive/negative/positive) surface barrier transistors.

Carcinotron

10. Development of carcinotrons which is being carried on at Werk WF under the Plan No. K 6-247, is intended by the end of 1956 to reach stage F-4 (i.e., preparation of a scientific report with proposals for the development stage proper). In other words, nothing beyond basic research is planned for 1956. The engineer charged with this task is having great difficulty in obtaining a satisfactory magnet with adequate stability. The carcinotron is to be used as an oscillator with large frequency variations up to 4,000 mcs.

Hydrogen Thyratron

11. In Werk WF work on the hydrogen thyratron is carried out under Plan No. K-6-257. Three models were completed in May 1956. Despite the fact that all three models were produced with the same basic data and under similar conditions, they each had very variable suppressing voltage values (Sperrspannungswerte) as follows:

a. 7-8 kV
b. 12 kV
c. 18-20 kV

It had been intended to produce a value of 15 kV.

Miscellaneous tube development

12. The following tubes are now under development in Werk WF:

a. Type No. EY and DY 86, Plan No. K 6-240. HF rectifier tube

Development of this tube is almost complete, and it will shortly be put into production. It has a voltage of 27 kV; titanium is used as the getter.

b. Type No. PL 36, Plan No. K 6-243. Line frequency deflection tube

This is a replacement for and an improvement on the PL 81. It serves as a line-deflecting end pentode in picture tubes with 90° angle-space. Difficulties are still being met in connection with the high screen grid load (Schirmgitterbelastung). It is hoped that this tube will go into production in the near future.

c. Type No. EL 34, Plan No. K 6-279. Output pentode

This is an end amplifier tube with 25 W output. It is still in the early stages of development, but it is hoped that it will be in production in 1957.

d. Type No. EC 94, Plan No. K 6-239. Oscillator triode.

Development on this tube is complete. The stability of this tube is assured by the use of tension (Spanngitter) in the grid.

e. Type Nos. ECC 960 and 962, Plan No. K 6-242. Double triodes

These tubes are still under development. They are rated as commercial tubes and thus must be able to stand considerable wear and tear.

f. Type Nos. EF 860 and 861, Plan Nos. K 6-241 D, K 6-238 D, Pentode and out amplifier tube.

These belong to the same group as the ECC 960 and 962 (see (e) above).

g. Work is also in progress on two tubes which have not yet been sanctioned on the official program. They are the EL 863 (similar to the Western type EL 83) and EC 562 (similar to the Western type EC 3 a). The latter is a particularly steep triode with 24 mA/V transconductance.

13. Radiosonde Tubes

Werk WF has received an enquiry from the East German Meteorological Institute in Potsdam about the possibility of the production of about 100 subminiature tubes EC 70. VEB Funkwerk Erfurt, whose task it is to produce these tubes, is taking too long to satisfy the Institute. Werk WF has been ordered not to accept this order, although in fact it is in a position to produce these tubes more quickly and simply than the Erfurt factory.

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